The 100 Most Cited Psoriasis Articles in Clinical Dermatologic Journals, 1970 to 2012

[a]JASHIN J. WU, MD; [b]YOUNG M. CHOI, BS; [c]WOJCIECH MARCZYNSKI, BS

[a]Department of Dermatology, Kaiser Permanente Los Angeles Medical Center, Los Angeles, California;
[b]David Geffen School of Medicine at UCLA, Los Angeles, California; [c]Indiana University South Bend, South Bend, Indiana

ABSTRACT

Background: Citation analysis is an effective way to gauge the impact of an article on the scientific community. **Objective:** The purpose of this study was to perform a citation analysis of 24 clinical dermatologic journals from 1970 to 2012, limited to the topic of psoriasis. **Methods:** The authors conducted a search of "psoriasis" in the Science Citation Index from 1970 to 2012, including articles that have received 100 or more citations. The top 100 most cited articles were further analyzed for country, institution, and study type. **Results:** Fifty of the top 100 most cited articles were from the United States and 81 of them were original articles. The majority of the top 100 classics were from dermatology programs in the United States, but institutions in the United Kingdom and Germany also made notable contributions. Citation classics in psoriasis were highly published from 1985 to 1989 and 2000 to 2004. **Limitations:** Limitations included potential neglect of a clinical dermatologic journal and the limited search term of "psoriasis." **Conclusion:** The great majority of citation classics were published in the premier dermatologic journals. The top-ranking dermatology programs in the United States produced the majority of the top 100 classics in psoriasis. The high number of citation classics from 1985 to 1989 correlates to the discovery of the immune-mediated pathogenesis of psoriasis at that time. The 21st century brought forth the monumental development of biologic agents in psoriasis therapy, reflected by the high number of citation classics from 2000 to 2004. (*J Clin Aesthet Dermatol.* 2014;7(10):10–19.)

Psoriasis is an increasingly common disease that has almost doubled in incidence since the 1970s.[1] Around the turn of the 21st century, tumor necrosis factor inhibitor therapy was developed and has proven to be a very successful therapy for psoriasis.[2–4] The continued monitoring of the safety of these agents,[5,6] the search for new biologic agents,[7,8] and recent insights into cardiovascular comorbidity[9] have made psoriasis a "hot topic" in dermatology research today.

One useful method in determining the impact of an article on the scientific community is by performing a citation analysis. Each article that is referenced by another peer-reviewed scientific article is credited a "citation." Since 1945, the Institute for Scientific Information has recorded the total number of citations for articles in more than 10,000 journals.[10] Often, citation analyses limit their focus to the "citation classics," those articles that have received 100 or more citations in a specified timeframe.[11–13]

Dubin et al[13] performed a citation analysis of clinical dermatologic journals to identify the most significant articles in dermatology from 1945 to 1990. In their paper, the value of citation analysis was well-described as a study that "emphasizes the impact of works of colleagues and predecessors, recognizes some of the seminal advances in the field of dermatology, permits discourse on the evolution of medical science, reveals insights into the spread of ideas, and satisfies our curiosity about historical developments in dermatology."

The purpose of the authors' study was to perform a citation analysis of clinical dermatologic journals from 1970 to 2012, limited to the topic of psoriasis. The authors hope their study will provide the benefits mentioned above to a highly relevant topic of dermatology today.

METHODS

The authors conducted a search of the Science Citation Index of the Institute for Scientific Information from 1970 to 2012. They evaluated 24 clinical dermatologic journals, an adapted list from a similar study[14] (Table 1). Their search was limited to the subject category of "psoriasis." For each journal, every article that had 100 or more citations was reviewed by two independent investigators and included if the topic of psoriasis was met.

From the total compiled list of included articles, those

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ADDRESS CORRESPONDENCE TO: Jashin J. Wu, MD, Kaiser Permanente Los Angeles Medical Center, Department of Dermatology, 1515 North Vermont Ave, 5th floor, Los Angeles, CA 90027; E-mail: jashinwu@hotmail.com

with the top 100 number of citations were further analyzed for the first author's country and institution of origin as well as the study type (original article, review article, meta-analysis, case report, case series, editorial, educational, guideline, commentary). Original articles were identified as producing novel information and having a clearly stated objective, methods, and results section. The other study types were easily discriminated based on the categorization by the publishing journal or the opinion of the investigator.

RESULTS

A total of 168 citation classics in psoriasis were collected from 1970 to 2012 in the 24 clinical dermatological journals the authors studied. Four journals (*Archives of Dermatology*, now known as *JAMA Dermatology, British Journal of Dermatology, Journal of the American Academy of Dermatology, Journal of Investigative Dermatology*) comprised 92 percent of the total number of citation classics (Table 1). Upon assessing the number of citation classics published over time, there was a sudden peak in trend during the time period of 1985 to 1989 (30 citation classics, 4,717 citations), as well as a gradual increase in the 1990s, leading to another peak from 2000 to 2004 (30 citation classics, 4,865 citations) (Figures 1 and 2).

The top 100 most cited psoriasis articles were compiled (Table 2). The great majority of these were original articles (81), followed by review articles (8). The other clinical study types, except for meta-analysis, were also represented by at least one of the top 100 psoriasis articles. The United States (50) and United Kingdom (18) comprised the great majority of countries from which the top 100 articles were produced. Germany was notable for producing nine of the top 100 articles. The remainder of the countries each possessed less than five articles. The University of Medicine and Dentistry of New Jersey (UMDNJ), Stanford University, and the University of Michigan were the leading institutions of origin for the top 100 articles, each having produced five articles. The University of Kiel in Germany was responsible for four articles. The University of Wales and St. Mary's Hospital, both institutions in the United Kingdom, produced three articles each. The other countries and institutions of origin are also listed (Table 3).

TABLE 1. Number of citation classics in clinical dermatologic journals

JOURNAL	NUMBER OF CITATION CLASSICS
Acta Dermato-Venereologica	4
American Journal of Dermatopathology	0
Annales de Dermatologie et de Venereologie	0
Archives of Dermatology (JAMA Dermatology)	42
Archives of Dermatological Research	3
British Journal of Dermatology	46
Clinical and Experimental Dermatology	2
Contact Dermatitis	0
Cutis	0
Dermatologic Surgery/Journal of Dermatologic Surgery and Oncology	0
Dermatology/Dermatologica	3
European Journal of Dermatology	0
Hautarzt	0
International Journal of Dermatology	1
Journal of the American Academy of Dermatology	37
Journal of Cutaneous Pathology	0
Journal of Dermatological Science	1
Journal of Dermatological Treatment	0
Journal of the European Academy of Dermatology and Venereoogy	0
Journal of Investigative Dermatology	29
Pediatric Dermatology	0
Photodermatology	0
Photodermatology, Photoimmunology, and Photomedicine	0
Skin Pharmacology	0
TOTAL	**168**

DISCUSSION

It is not surprising that the great majority of the top 100 classics in psoriasis were published in the premier dermatology journals with the highest impact factors. Likewise, it is expected that most of these influential papers would be original research articles that have contributed novel information to the field of dermatology. Half of the top 100 classics were produced in the United States, recognized as the world's leader in medical research.

The top dermatology programs in the United States, such as Stanford University, University of Michigan, University of Utah, University of Pennsylvania, Northwestern University, Harvard University, University of Miami, University of Texas, Baylor University, and Yale University were noted to have each produced at least two of the top 100 classics in psoriasis since 1970.[15] Especially noteworthy, the University of Medicine and Dentistry of New Jersey (UMDNJ) contributed five of the top 100 classics in psoriasis since 1970. Dr. Alice B. Gottlieb, Chief of Dermatology at Tufts Medical Center,

authored all five of these papers, including four as first author.

The authors found that two peaks in significant psoriasis research occurred around the time periods of 1985 to 1989 and 2000 to 2004. At the end of the 1970s, it was observed that renal transplant patients on cyclosporin A significantly improved their psoriasis.[16] This finding initiated a new theory on the pathogenesis of psoriasis, centered on T-cell activation and inflammatory cytokines.[17] Much of the research in the 1980s, therefore, was sparked by the desire to elucidate the immune-based pathogenesis of psoriasis as well as test applicable therapies. In the 30 citation classics from 1985 to 1989, eight of them dealt with the mechanism of psoriasis and 14 dealt with therapies, mainly cyclosporin A and vitamin D3 analogues.

At the beginning of the new millennium, it was discovered that anti-T-cell-directed therapies were much less effective than therapies targeted toward inflammatory cytokines, specifically TNF-α inhibitors (etanercept, adalimumab, infliximab).[17] As evidenced by the results of the authors' study, the 21st century has seen a surge in psoriasis research driven by the search for new, effective biologic agents. The fact that these articles, published only in the past decade, have accumulated more than 100 citations is demonstration of their significance to the medical community.[18–20]

The authors acknowledge limitations in their study. Although they believe they included a comprehensive list of dermatologic journals, it is possible that they may have neglected an important dermatology journal. It is highly unlikely, though, that any neglected journal would have included one of the citation classics in psoriasis. Moreover, using only the search term of "psoriasis" may not have included every psoriasis article in the Science Citation Index. Again, it is unlikely that the authors' methodology neglected any citation classics in psoriasis.

The authors believe their citation analysis of psoriasis research from 1970 to 2012 has accomplished the goals described by Dubin et al.[13] By analyzing the most frequent time periods of citation classics, the authors were able to recognize significant advances in psoriasis pathogenesis and treatment. The 100 most cited psoriasis articles highlight the work of colleagues from institutions across the globe. All in all, this study confirms that psoriasis research is a major component of dermatology today, currently in an exciting period of discovery and innovation. **See Tables 2 and 3 on following pages.**

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4. Gordon KB, Langley RG, Leonardi C, et al. Clinical response to adalimumab treatment in patients with moderate to severe psoriasis: double-blind, randomized controlled trial and open-label extension study. *J Am Acad Dermatol.* 2006;55(4): 598–606.
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6. Rustin MH. Long-term safety of biologics in the treatment of moderate-to-severe plaque psoriasis: review of current data. *Br J Dermatol.* 2012;167(Suppl 3):3–11.
7. Leonardi C, Matheson R, Zachariae C, et al. Anti-interleukin-17 monoclonal antibody Ixekizumab in chronic plaque psoriasis. *N Engl J Med.* 2012;366(13):1190–1199.
8. Papp KA, Leonardi C, Menter A, et al. Brodalumab, an anti-interleukin-17-receptor antibody for psoriasis. *N Engl J Med.* 2012;366(13):1181–1189.
9. Hugh J, Van Voorhees AS, Nijhawan RI, et al. The risk of cardiovascular disease in individuals with psoriasis and the potential impact of current therapies: from the medical board of the National Psoriasis Foundation. *J Am Acad Dermatol.* 2013 Oct; [Epub ahead of print].
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11. Yoon DY, Yun EJ, Ku YJ, et al. Citation classics in radiology journals: the 100 top-cited articles, 1945–2012. *AJR Am J Roentgenol.* 2013;201(3):471–481.
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17. Sabat R, Sterry W, Philipp S, Wolk K. Three decades of psoriasis research: where has it led us? *Clin Dermatol.* 2007;25(6):504–509.
18. Gottlieb AB, Matheson RT, Lowe N, et al. A randomized trial of etanercept as monotherapy for psoriasis. *Arch Dermatol.* 2003;139(12):1627–1632.
19. Gordon KB, Langley RG, Leonardi C, et al. Clinical response to adalimumab treatment in patients with moderate to severe psoriasis: double-blind, randomized controlled trial and open-label extension study. *J Am Acad Dermatol.* 2006;55(4): 598–606.
20. Gottlieb AB, Evans R, Li S, et al. Infliximab induction therapy for patients with severe plaque-type psoriasis: a randomized, double-blind, placebo-controlled trial. *J Am Acad Dermatol.* 2004;51(4):534–542.

See Tables 2 and 3 on following pages.

TABLE 2. Top 100 most cited citation classics in psoriasis

RANK	ARTICLE REFERENCE	NUMBER OF CITATIONS
1	Fredriksson T, Pettersson U. Severe psoriasis – oral therapy with a new retinoid. Dermatologica 1978;157(4):238-44.	1217
2	Rapp SR, Feldman SR, Exum ML, Fleischer AB, Reboussin DM. Psoriasis causes as much disability as other major medical diseases. J Am Acad Dermatol 1999 Sep;41(3 Pt 1):401-7.	475
3	Melski JW, Tanenbaum L, Parrish JA, Fitzpatrick TB, Bleich HL. Oral methoxsalen photochemotherapy for the treatment of psoriasis: a cooperative clinical trial. J Invest Dermatol 1977 Jun;68(6):328-35.	444
4	Krueger G, Koo J, Lebwohl M, Menter A, Stern RS, Rolstad T. The impact of psoriasis on quality of life: results of a 1998 National Psoriasis Foundation patient-membership survey. Arch Dermatol 2001 Mar;137(3):280-4.	431
5	Henseler T, Christophers E. Psoriasis of early and late onset: characterization of two types of psoriasis vulgaris. J Am Acad Dermatol 1985 Sep;13(3):450-6.	382
6	Krueger JG. The immunologic basis for the treatment of psoriasis with new biologic agents. J Am Acad Dermatol 2002 Jan;46(1):1-23.	336
7	Gupta MA, Gupta AK. Depression and suicidal ideation in dermatology patients with acne, alopecia areata, atopic dermatitis and psoriasis. Br J Dermatol 1998 Nov;139(5):846-50.	297
8	Henseler T, Christophers E. Disease concomitance in psoriasis. J Am Acad Dermatol 1995 Jun;32(6):982-6.	280
9	Nickoloff, BJ. The Cytokine Network in Psoriasis. Arch Dermatol 1991 ;127(6):871-84.	279
10	Schlaak JF, Buslau M, Jochum W, Hermann E, Girndt M, Gallati H, et al. T cells involved in psoriasis vulgaris belong to the Th1 subset. J Invest Dermatol 1994 Feb;102(2):145-9.	274
11	Neimann AL, Shin DB, Wang X, Margolis DJ, Troxel AB, Gelfand JM. Prevalence of cardiovascular risk factors in patients with psoriasis. J Am Acad Dermatol 2006 Nov;55(5):829-35. Epub 2006 Sep 25.	272
12	Austin LM, Ozawa M, Kikuchi T, Walters IB, Krueger JG. The majority of epidermal T cells in Psoriasis vulgaris lesions can produce type 1 cytokines, interferon-gamma, interleukin-2, and tumor necrosis factor-alpha, defining TC1 (cytotoxic T lymphocyte) and TH1 effector populations: a type 1 differentiation bias is also measured in circulating blood T cells in psoriatic patients. J Invest Dermatol 1999 Nov;113(5):752-9.	267
13	Papp KA, Tyring S, Lahfa M, Prinz J, Griffiths CE, Nakanishi AM, et al. A global phase III randomized controlled trial of etanercept in psoriasis: safety, efficacy, and effect of dose reduction. Br J Dermatol 2005 Jun;152(6):1304-12.	259
—	Finlay AY, Coles EC. The effect of severe psoriasis on the quality of life of 369 patients. Br J Dermatol 1995 Feb;132(2):236-44.	259
15	Wolff K, Fitzpatrick TB, Parrish JA, Gschnait F, Gilchrest B, Honigsmann H, et al. Photochemotherapy for psoriasis with orally-administered methoxsalen. Arch Dermatol 1976 Jul;112(7):943-50.	258
16	Lowes MA, Kikuchi T, Fuentes-Duculan J, Cardinale I, Zaba LC, Haider AS, et al. Psoriasis vulgaris lesions contain discrete populations of Th1 and Th17 T cells. J Invest Dermatol 2008 May;128(5):1207-11.	256
17	Roenigk HH, Auerbach R, Maibach HI, Weinstein GD. Methotrexate in psoriasis: revised guidelines. J Am Acad Dermatol 1988 Jul;19(1 Pt 1):145-56.	255
18	Gottlieb AB, Matheson RT, Lowe N, Krueger GG, Kang S, Goffe BS, et al. A randomized trial of etanercept as monotherapy for psoriasis. Arch Dermatol 2003 Dec;139(12):1627-32.	254
19	Baker BS, Swain AF, Fry L, Valdimarsson H. Epidermal Lymphocytes-T and Hla-dr expression in psoriasis. Br J Dermatol 1984 May; 110(5): 555-564.	241
20	Lebwohl M, Christophers E, Langley R, Ortonne JP, Roberts J, Griffiths CEM. An international, randomized, double-blind, placebo-controlled phase 3 trial of intramuscular alefacept in patients with chronic plaque psoriasis. Arch Dermatol 2003 Jun;139(6):719-27.	231
—	Weinstei GD, Frost P. Methotrexate for psoriasis – new therapeutic schedule. Arch Dermatol 1971 Jan;103(1):33-8.	231
—	Gottlieb AB, Evans R, Li S, Dooley LT, Guzzo CA, Baker D, et al. Infliximab induction therapy for patients with severe plaque-type psoriasis: a randomized, double-blind, placebo-controlled trial. J Am Acad Dermatol 2004 Oct;51(4):534-42.	231

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TABLE 2 continued. Top 100 most cited citation classics in psoriasis

RANK	ARTICLE REFERENCE	NUMBER OF CITATIONS
—	Nanney LB, Stoscheck CM, Magid M, King LE. Altered [125I]epidermal growth factor binding and receptor distribution in psoriasis. J Invest Dermatol 1986 Mar;86(3):260-5.	231
24	Farber EM, Nall ML. The natural history of psoriasis in 5,600 patients. Dermatologica 1974;148(1):1-18.	228
—	Parrish JA, Jaenicke KF. Action Spectrum for phototherapy of psoriasis. J Invest Dermatol 1981 May;76(5):359-62.	228
26	Weinstei G, Roenigk H, Maibach H, Cosmides J, Millard M. Psoriasis-liver-methotrexate interactions. Arch Dermatol 1973 Jul;108(1):36-42.	218
27	Christophers E. Psoriasis - epidemiology and clinical spectrum. Clin Exp Dermatol 2001 Jun;26(4):314-20.	209
28	Duvic M, Johnson TM, Rapini RP, Freese T, Brewton G, Rios A. Acquired immunodeficiency syndrome – associated psoriasis and Reiters syndrome. Arch Dermatol 1987 Dec;123(12):1622-32.	206
—	Krueger GG, Papp KA, Stough DB, Loven KH, Gulliver WP, Ellis CN, et al. A randomized, double-blind, placebo-controlled phase III study evaluating efficacy and tolerability of 2 courses of alefacept in patients with chronic plaque psoriasis. J Am Acad Dermatol 2002 Dec;47(6):821-33.	206
—	Farber EM, Nickoloff BJ, Recht B, Fraki JE. Stress, symmetry, and psoriasis: possible role of neuropeptides. J Am Acad Dermatol 1986 Feb;14(2 Pt 1):305-11.	206
31	Menter A, Gottlieb A, Feldman SR, Van Voorhees AS, Leonardi CL, Gordon KB, et al. Guidelines of care for the management of psoriasis and psoriatic arthritis: Section 1. Overview of psoriasis and guidelines of care for the treatment of psoriasis with biologics. J Am Acad Dermatol 2008 May;58(5):826-50.	200
32	Brain S, Camp R, Dowd P, Black AK, Greaves M. The release of leukotriene B4-like material in biologically active amounts from the lesional skin of patients with psoriasis. J Invest Dermatol 1984 Jul;83(1):70-3.	193
33	Naldi L, Chatenoud L, Linder D, Belloni Fortina A, Peserico A, Virgili AR, et al. Cigarette smoking, body mass index, and stressful life events as risk factors for psoriasis: results from an Italian case-control study. J Invest Dermatol 2005 Jul;125(1):61-7.	192
34	Voorhees JJ. Leukotrienes and other lipoxygenase products in the pathogenesis and therapy of psoriasis and other dermatoses. Arch Dermatol 1983 Jul;119(7):541-7.	190
—	Sommer DM, Jenisch S, Suchan M, Christophers E, Weichenthal M. Increased prevalence of the metabolic syndrome in patients with moderate to severe psoriasis. Arch Dermatol Res 2006 Dec;298(7):321-8.	190
36	Gordon KB, Langley RG, Leonardi C, Toth D, Menter MA, Kang S, et al. Clinical response to adalimumab treatment in patients with moderate to severe psoriasis: double-blind, randomized controlled trial and open-label extension study. J Am Acad Dermatol 2006 Oct;55(4):598-606.	187
37	Kragballe K. Treatment of psoriasis by the topical application of the novel cholecalciferol analog calcipotriol (MC-903). Skin Pharmacol 1992;5(2):87-92.	186
—	Finlay AY, Khan GK, Luscombe DK, Salek MS. Validation of Sickness Impact Profile and Psoriasis Disability Index in Psoriasis. Br J Dermatol 1990 Dec;123(6):751-6.	186
—	Tiilkinainen A, Lassus A, Karvonen J, Vartiainen P, Julin M. Psoriasis and hla-cw6. Br J Dermatol 1980 Feb;102(2):179-84.	186
—	Roenigk HH, Auerbach R, Maibach H, Weinstein G, Lebwohl M. Methotrexate in psoriasis: Consensus conference. J Am Acad Dermatol 1998 Mar;38(3):478-85.	186
41	Gisondi P, Tessari G, Conti A, Piaserico S, Schianchi S, Peserico A, et al. Prevalence of metabolic syndrome in patients with psoriasis: a hospital-based case-control study. Br J Dermatol 2007 Jul;157(1):68-73.	184
42	Saurat JH, Stingl G, Dubertret L, Papp K, Langley RG, Ortonne JP, et al. Efficacy and safety results from the randomized controlled comparative study of adalimumab vs. methotrexate vs. placebo in patients with psoriasis (CHAMPION). Br J Dermatol 2008 Mar;158(3):558-66.	181
—	Menter A, Tyring SK, Gordon K, Kimball AB, Leonardi CL, Langley RG, et al. Adalimumab therapy for moderate to severe psoriasis: A randomized, controlled phase III trial. J Am Acad Dermatol 2008 Jan;58(1):106-15.	181

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TABLE 2 continued. Top 100 most cited citation classics in psoriasis

RANK	ARTICLE REFERENCE	NUMBER OF CITATIONS
44	Elder JT, Nair RP, Guo SW, Henseler T, Christophers E, Voorhees JJ. The genetics of psoriasis. Arch Dermatol 1994 Feb;130(2):216-24.	179
45	Bos JD, Hulsebosch HJ, Krieg SR, Bakker PM, Cormane RH. Immunocompetent cells in psoriasis. In situ immunophenotyping by monoclonal antibodies. Arch Dermatol Res 1983;275(3):181-9.	175
46	Finlay AY, Kelly SE. Psoriasis – an index of disability. Clin Exp Dermatol 1987 Jan;12(1):8-11.	174
47	Leigh IM, Navsaria H, Purkis PE, McKay IA, Bowden PE, Riddle PN. Keratins (K16 and K17) as markers of keratinocyte hyperproliferation in psoriasis in vivo and in vitro. Br J Dermatol 1995 Oct;133(4):501-11.	172
—	Madsen P, Rasmussen HH, Leffers H, Honoré B, Celis JE. Molecular cloning and expression of a novel keratinocyte protein (psoriasis-associated fatty acid-binding protein [PA-FABP]) that is highly up-regulated in psoriatic skin and that shares similarity to fatty acid-binding proteins. J Invest Dermatol 1992 Sep;99(3):299-305.	172
49	van Weelden H, De La Faille HB, Young E, van der Leun JC. A new development in UVB phototherapy of psoriasis. Br J Dermatol 1988 Jul;119(1):11-9.	168
50	Epinette WW, Parker CM, Jones EL, Greist MC. Mycophenolic acid for psoriasis. A review of pharmacology, long-term efficacy, and safety. J Am Acad Dermatol 1987 Dec;17(6):962-71.	166
51	Marks R, Barton SP, Shuttleworth D, Finlay AY. Assessment of disease progress in psoriasis. Arch Dermatol 1989 Feb;125(2):235-40.	165
52	Watson W, Cann HM, Farber EM, Nall LM. The genetics of psoriasis. Arch Dermatol 1972 Feb;105(2):197-207.	163
—	Kragballe K, Beck HI, Søgaard H. Improvement of psoriasis by a topical vitamin D3 analogue (MC 903) in a double-blind study. Br J Dermatol 1988 Aug;119(2):223-30.	163
54	Lindegard B. Diseases associated with psoriasis in a general population of 159,200 middle-aged, urban, native Swedes. Dermatologica 1986;172(6):298-304.	162
55	Herron MD, Hinckley M, Hoffman MS, Papenfuss J, Hansen CB, Callis KP, et al. Impact of obesity and smoking on psoriasis presentation and management. Arch Dermatol 2005 Dec;141(12):1527-34.	160
56	Nickoloff BJ. The immunologic and genetic basis of psoriasis. Arch Dermatol 1999 Sep;135(9):1104-10.	158
—	Van Joost T, Bos JD, Heule F, Meinardi MM. Low-dose cyclosporin A in severe psoriasis. A double-blind study. Br J Dermatol 1988 Feb;118(2):183-90.	158
58	Gottlieb AB, Krueger JG, Wittkowski K, Dedrick R, Walicke PA, Garovoy M. Psoriasis as a model for T-cell-mediated disease - Immunobiologic and clinical effects of treatment with multiple doses of efalizumab, an anti-CD11a antibody. Arch Dermatol 2002 May;138(5):591-600.	157
59	Gottlieb A, Krueger JG, Bright R, Ling M, Lebwohl M, Kang S, et al. Effects of administration of a single dose of a humanized monoclonal antibody to CD11a on the immunobiology and clinical activity of psoriasis. J Am Acad Dermatol 2000 Mar;42(3):428-35.	155
60	Smith CH, Anstey AV, Barker JN, Burden AD, Chalmers RJ, Chandler D, et al. British Association of Dermatologists guidelines for use of biological interventions in psoriasis 2005. Br J Dermatol 2005 Sep;153(3):486-97.	154
—	Cunliffe WJ, Berth-Jones J, Claudy A, Fairiss G, Goldin D, Gratton D, et al. Comparative study of calcipotriol (MC 903) ointment and betamethasone 17-valerate ointment in patients with psoriasis vulgaris. J Am Acad Dermatol 1992 May;26(5 Pt 1):736-43.	154
62	Paul CF, Ho VC, McGeown C, Christophers E, Schmidtmann B, Guillaume JC, et al. Risk of malignancies in psoriasis patients treated with cyclosporine: a 5 y cohort study. J Invest Dermatol 2003 Feb;120(2):211-6.	152

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TABLE 2 continued. Top 100 most cited citation classics in psoriasis

RANK	ARTICLE REFERENCE	NUMBER OF CITATIONS
—	Ruzicka T, Simmet T, Peskar BA, Ring J. Skin levels of arachidonic acid-derived inflammatory mediators and histamine in atopic dermatitis and psoriasis. J Invest Dermatol 1986 Feb;86(2):105-8.	152
64	Braverman IM, Sibley J. Role of the micro-circulation in the treatment and pathogenesis of psoriasis. J Invest Dermatol 1982 Jan;78(1):12-17.	151
65	Fortune DG, Main CJ, O'Sullivan TM, Griffiths CE. Quality of life in patients with psoriasis: the contribution of clinical variables and psoriasis-specific stress. Br J Dermatol 1997 Nov;137(5):755-60.	150
66	Baker BS, Fry L. The immunology of psoriasis. 1992 Jan; 126(1):1-9.	149
67	Green C, Ferguson J, Lakshmipathi T, Johnson BE. 3II-nm uvb phototherapy – an effective treatment for psoriasis. Br J Dermatol 1988 Dec;119(6):691-6.	147
—	Kauffman CL, Aria N, Toichi E, McCormick TS, Cooper KD, Gottlieb AB, et al. A phase I study evaluating the safety, pharmacokinetics, and clinical response of a human IL-12 p40 antibody in subjects with plaque psoriasis. J Invest Dermatol 2004 Dec;123(6):1037-44.	147
—	Naukkarinen A, Nickoloff BJ, Farber EM. Quantification of cutaneous sensory nerves and their substance P content in psoriasis. J Invest Dermatol 1989 Jan;92(1):126-9.	147
70	Smith EL, Pincus SH, Donovan L, Holick MF. A novel approach for the evaluation and treatment of psoriasis. Oral or topical use of 1,25-dihydroxyvitamin D3 can be a safe and effective therapy for psoriasis. J Am Acad Dermatol 1988 Sep;19(3):516-28.	144
71	Morimoto S, Yoshikawa K, Kozuka T, Kitano Y, Imanaka S, Fukuo K, et al. An open study of vitamin D3 treatment in psoriasis vulgaris. Br J Dermatol 1986 Oct;115(4):421-9.	143
72	Baker BS, Swain AF, Valdimarsson H, Fry L. T-cell subpopulations in the blood and skin of patients with psoriasis. Br J Dermatol 1984 Jan;110(1):37-44.	141
73	Ziboh VA, Cohen KA, Ellis CN, Miller C, Hamilton TA, Kragballe K, et al. Effects of dietary supplementation of fish oil on neutrophil and epidermal fatty-acids – modulation of clinical course of psoriatic subjects. Arch Dermatol. 1986 Nov;122(11):1277-82.	141
—	Bos JD. The pathomechanisms of psoriasis; the skin immune system and cyclosporin. Br J Dermatol 1988 Feb;118(2):141-55.	140
75	Richards HL, Fortune DG, O'Sullivan TM, Main CJ, Griffiths CE. Patients with psoriasis and their compliance with medication. J Am Acad Dermatol 1999 Oct;41(4):581-3.	139
76	Nevitt GJ, Hutchinson PE. Psoriasis in the community: prevalence, severity and patients' beliefs and attitudes towards the disease. Br J Dermatol 1996 Oct;135(4):533-7.	139
—	Oh CJ, Das KM, Gottlieb AB. Treatment with anti-tumor necrosis factor alpha (TNF-alpha) monoclonal antibody dramatically decreases the clinical activity of psoriasis lesions. J Am Acad Dermatol 2000 May;42(5 Pt 1):829-30.	138
78	Gelfand JM, Weinstein R, Porter SB, Neimann AL, Berlin JA, Margolis D. Prevalence and treatment of psoriasis in the United Kingdom - A population-based study. Arch Dermatol 2005 Dec;141(12):1537-41.	138
—	Gelfand, J, Troxel, A, Lewis, J, Kurd, S, Shin, D, Wang, X, et at. Nickoloff, BJ. The risk of mortality in patients with psoriasis - Results from a population-based study. Arch Dermatol 2007 Dec;143(12):1493-9.	138
—	Ginsburg IH, Link BG. Feelings of stigmatization in patients with psoriasis. J Am Acad Dermatol 1989 Jan;20(1):53-63.	137
81	Telfer NR, Chalmers RJ, Whale K, Colman G. The role of streptococcal infection in the initiation of guttate psoriasis. Arch Dermatol 1992 Jan;128(1):39-42.	137

Continued on next page

TABLE 2 continued. Top 100 most cited citation classics in psoriasis

RANK	ARTICLE REFERENCE	NUMBER OF CITATIONS
—	Menter A, Gordon K, Carey W, Hamilton T, Glazer S, Caro I, et al. Efficacy and safety observed during 24 weeks of efalizumab therapy in patients with moderate to severe plaque psoriasis. Arch Dermatol 2005 Jan;141(1):31-8.	137
—	Leonardi CL, Papp KA, Gordon KB, Menter A, Feldman SR, Caro I, et al. Extended efalizumab therapy improves chronic plaque psoriasis: results from a randomized phase III trial. J Am Acad Dermatol 2005 Mar;52(3 Pt 1):425-33.	137
84	McDonald CJ, Calabresi P. Psoriasis and occlusive vascular disease. Br J Dermatol 1978 Nov;99(5):469-75.clinical variables and psoriasis-specific stress. Br J Dermatol 1997 Nov;137(5):755-60.	136
85	Baker BS, Ovigne JM, Powles AV, Corcoran S, Fry L. Normal keratinocytes express Toll-like receptors (TLRs) 1, 2 and 5: modulation of TLR expression in chronic plaque psoriasis. Br J Dermatol 2003 Apr;148(4):670-9.	134
86	Swanbeck G, Thyressonhok M, Bredberg A, Lambert B. Treatment of psoriasis with oral psoralens and long-wave ultraviolet light. Therapeutic results and cytogenetic hazards. Acta Derm Venerol 1975;55(5):367-76.	133
87	Ellis CN, Varani J, Fisher GJ, Zeigler ME, Pershadsingh HA, Benson SC, et al. Troglitazone improves psoriasis and normalizes models of proliferative skin disease: ligands for peroxisome proliferator-activated receptor-gamma inhibit keratinocyte proliferation. Arch Dermatol 2000 May;136(5):609-16.	132
88	Prodanovich S, Ma F, Taylor JR, Pezon C, Fasihi T, Kirsner RS. Methotrexate reduces incidence of vascular diseases in veterans with psoriasis or rheumatoid arthritis. J Am Acad Dermatol 2005 Feb;52(2):262-7.	131
—	Abel EA, Dicicco LM, Orenberg EK, Fraki JE, Farber EM. Drugs in exacerbation of psoriasis. J Am Acad Dermatol 1986 Nov;15(5 Pt 1):1007-22.	131
—	Di Cesare A, Di Meglio P, Nestle FO. The IL-23/Th17 axis in the immunopathogenesis of psoriasis. J Invest Dermatol 2009 Jun;129(6):1339-50.	131
91	Braverman IM, Yen A. Ultrastructure of the capillary loops in the dermal papillae of psoriasis. J Invest Dermatol 1977 Jan;68(1):53-60.	130
92	Voorhees JJ, Duell EA. Psoriasis as a possible defect of the adenyl cyclase-cyclic AMP cascade. A defective chalone mechanism? Arch Dermatol 1971 Oct;104(4):352-8.	128
—	Svejgaard A, Nielsen LS, Svejgaard E, Nielsen FK, Hjortshoj A, Zachariae H. HL-A in psoriasis vulgaris and in pustular psoriasis--population and family studies. Br J Dermatol 1974 Aug;91(2):145-53.	128
94	de Gannes GC, Ghoreishi M, Pope J, Russell A, Bell D, Adams S, et al. Psoriasis and pustular dermatitis triggered by TNF-alpha inhibitors in patients with rheumatologic conditions. Arch Dermatol 2007 Feb;143(2):223-31.	127
95	Farber EM, Nall ML, Watson W. Natural history of psoriasis in 61 twin pairs. Arch Dermatol 1974 Feb;109(2):207-11.	126
—	Ludwig RJ, Herzog C, Rostock A, Ochsendorf FR, Zollner TM, Thaci D, et al. Psoriasis: a possible risk factor for development of coronary artery calcification. Br J Dermatol 2007 Feb;156(2):271-6.	126
—	Baker BS, Griffiths CE, Lambert S, Powles AV, Leonard JN, Valdimarsson H, et al. The effects of cyclosporin A on T lymphocyte and dendritic cell sub-populations in psoriasis. Br J Dermatol 1987 Apr;116(4):503-10.	126
—	Höhler T, Kruger A, Schneider PM, Schopf RE, Knop J, Rittner C, et al. A TNF-alpha promoter polymorphism is associated with juvenile onset psoriasis and psoriatic arthritis. J Invest Dermatol 1997 Oct;109(4):562-5.	126
—	Capon F, Novelli G, Semprini S, Clementi M, Nudo M, Vultaggio P, et al. Searching for psoriasis susceptibility genes in Italy: genome scan and evidence for a new locus on chromosome 1. J Invest Dermatol 1999 Jan;112(1):32-5.	126
100	Fierlbeck G, Rassner G, Müller C. Psoriasis induced at the injection site of recombinant interferon gamma. Results of immunohistologic investigations. Arch Dermatol 1990 Mar;126(3):351-5.	125

TABLE 3. Country and institution of origin for the top 100 most cited psoriasis articles

COUNTRY	INSTITUTION	NUMBER OF ARTICLES
Austria	University of Vienna	1
	Total	**1**
Canada	Probity Medical Research, Inc.	1
	The Skin Care Centre	1
	University of Western Ontario	1
	Total	**3**
Denmark	Marselisborg Hospital, Aarhus	1
	University of Copenhagen	1
	University of Aarhus	2
	Total	**4**
Finland	University of Helsinki	1
	Total	**1**
Germany	Johannes Gutenberg Universität	1
	Johann Wolfgang Goethe University	1
	University of Kiel	4
	University of Mainz	1
	University of Munich	1
	University of Tübingen	1
	Total	**9**
Iceland	University of Iceland	1
	Total	**1**

TABLE 3 continued. Country and institution of origin for the top 100 most cited psoriasis articles

COUNTRY	INSTITUTION	NUMBER OF ARTICLES
Italy	Centro Studi GISED	1
	University of Rome	1
	University of Verona	1
	Total	**3**
Japan	Osaka University	1
	Total	**1**
Netherlands	Erasmus University	1
	State University of Utrecht	1
	University of Amsterdam	1
	Total	**3**
Sweden	Sahlgrenska University Hospital	1
	University of Gothenburg	1
	Västerås Central Hospital, Västerås	1
	Total	**3**
Switzerland	Novartis Pharma AG	1
	Universitaires de Genève	1
	Total	**2**

TABLE 3 continued. Country and institution of origin for the top 100 most cited psoriasis articles

COUNTRY	INSTITUTION	NUMBER OF ARTICLES
United Kingdom	ICRF Skin Tumour Laboratory	1
	Imperial College of Science, Technology, and Medicine	1
	King's College London	1
	Leeds General Infirmary	1
	Leicester Royal Infirmary	1
	Southern General Hospital, Glasgow	1
	St. Mary's Hospital, London	3
	St. John's Hospital, Livingston	1
	St. Thomas' Hospital, London	1
	University of Dundee	1
	University of Manchester	3
	University of Wales	3
	Total	**18**

TABLE 3 continued. Country and institution of origin for the top 100 most cited psoriasis articles

COUNTRY	INSTITUTION	NUMBER OF ARTICLES
United States	Baylor University	2
	Boston City Hospital	1
	Brown University	1
	Columbia University	1
	Georgetown University	1
	Harvard University	2
	Indiana University	1
	Loyola University	1
	Mount Sinai School of Medicine	1
	Northwestern University	3
	Psoriasis Research Institute	1
	St. Louis University	1
	Stanford University	5
	The Rockefeller University	3
	University of California, Davis	1
	University of Medicine and Dentistry of New Jersey	5
	University of Miami	2
	University of Michigan	5
	University of Pennsylvania	3
	University of Texas	2
	University of Utah	3
	Vanderbilt University	1
	Veterans Administration Medical Center, Miami	1
	Wake Forest University	1
	Yale University	2
	Total	**50**